

LUCKENBACH FLOUR MILL, 1869
250 feet east of Monocacy Creek, 250 feet
west of Main Street, 700 feet south of
Broad Street, north side of Ohio Road
Bethlehem, Northampton County, Pennsylvania

HAER PA-50-1

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PA,
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HISTORICAL AND DESCRIPTIVE DATA
PHOTOGRAPHS

Reduced Copies of Measured Drawings

Historic American Engineering Record
Office of Archaeology and Historic Preservation
National Park Service
United States Department of the Interior
Washington, D. C. 20240

HISTORIC AMERICAN ENGINEERING RECORD

HAER
PA,
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10-

LUCKENBACH FLOUR MILL
HAER PA-50

Location: 250 feet east of Monocacy Creek, 250 feet west of Main Street, 700 feet south of Broad Street, north side of Ohio Road, Bethlehem, Northampton County, Pennsylvania.
UTM: 18.467580.4496460

Date of Construction: 1869

Present owner: City of Bethlehem (leased by Historic Bethlehem, Inc.)

Present use: To be renovated for use in an historical park.

Significance: Located on the foundation of a 1751 Moravian grist mill, the Luckenbach Flour Mill represents the evolution of milling technology in the last half of the 19th century. Roller milling machinery was installed in 1882.

Civil Engineer/Historian: Donald C. Jackson, September 1975

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LUCKENBACH FLOUR MILL

The 1869 Luckenbach Flour Mill was built in a community originally founded by the Moravian Church in 1741. Any attempt to understand the importance of the mill must place it within the context of the Moravian Church and the communal spirit which it embodied.

Pre-reformation in origin, the Moravian Church was founded by followers of John Hus, a freethinker burned at the stake for heresy by the Roman Catholic Church in 1415. Following a period of extreme persecution during and after the Thirty Years War (1618-1648), the Moravian Church was renewed and strengthened under the patronage of Count Nicholas von Zinzendorf of Saxony in the early 18th century. Under his leadership, the Moravians began a zealous campaign of missionary work that resulted in the founding of Bethlehem, Pennsylvania, in 1741.

Like all Moravian settlements, Bethlehem was well-planned, with a large emphasis on industrial activity in the community. The Moravians had always been known as skilled organizers, and their development of Bethlehem quickly bore this out. As the central headquarters for Moravian involvement in North America, Bethlehem was the focus of a heavy concentration of industry. The primary objective of this concentration was to insure the self-sufficiency of the community regardless of the external political or economic situation.

By 1747, over 32 industries including a tannery, springhouse, sawmill, and grist mill had been founded on the banks of the Monocacy Creek and in surrounding areas. At any given time, a large portion of the congregation might have been somewhere in the frontier lands of North America spreading the teachings of Christianity. Thus, the industries of 18th century Bethlehem were originally developed to serve much more than just nearby geographical regions, they were to provide for the industrial needs of Moravian communities throughout the New World. The importance of a communal grist mill in such a situation was that large-scale production of flour and feed released many Brethren from concern about foot output and allowed their energies to be utilized elsewhere.

For the first 20 years, Bethlehem was governed under a "General Economy" in which the Church owned all land and buildings, and church members received their food, clothing, and living requirements in exchange for their labor. In 1760, the system was partially altered; the Church retained ownership of buildings and land, but church members now worked for wages. The Moravian Church did not change this policy and begin to dispose of any of their land holdings until the 1840s.

3
-2-

From the earliest days of the settlement, the Moravians recognized the importance of a grist mill in providing a basis for self-sufficiency. In 1743, a wooden framed grist mill was built on the banks of the Monocacy, and, in 1751, it was replaced by a second grist mill which served the community for the next 118 years. (Photo PA-50-19). This was a limestone structure with a wood interior. The brick arch over the raceway of the 1751 mill was incorporated into the extant 1869 mill and can still be seen. (Photo PA-50-5). The mill was under the control of the Moravian Church until 1845, but records of its operation during this time could not be located.¹

The Moravian Church owned the 1751 grist mill until 19 May 1845, when Phillip Goepp, the chief administrator of the Church, under whose name all its property was held, sold a ground rent deed for three lots, including the mill along the Monocacy Creek, to a fellow church member, Charles A. Luckenbach (see Appendix 1). Under the terms of the contract, C. A. Luckenbach paid Goepp one (1) dollar outright and agreed to transfer \$37.51 to Goepp on the first of April of every year.² On 30 March 1847, C. A. Luckenbach sold the ground rent rights to his cousin, Jacob Luckenbach, for the sum of \$12,000, along with the stipulation that J. Luckenbach pay P. Goepp \$37.51 every 1 April.³

The first indication of the actual nature of the mill's operation is found in the 1850 Federal Manuscript Census of Industry for Pennsylvania (see Appendix 2).⁴ By 1850, the capital investment in the mill was valued at \$10,000 and the value of the wheat flour produced during the preceding year was \$2,000.

On 17 November 1851, the ground rent deed for three lots of land, including the mill property, was sold by Jacob Luckenbach back to the chief administrator of the Moravian Church, Phillip Goepp, for the price of one dollar.⁵ On 1 December 1851, Phillip Goepp sold outright these same three lots to Jacob Luckenbach for \$2,002.54.⁶ The mill had now passed completely out of the control of the Moravian Church for the first time since its construction 100 years previously.

By 1860, the capital investment in the mill had increased to \$15,000, a rise of \$5,000 from the figure recorded in the 1850 census. The amounts of raw and finished products also increased dramatically, however, typographical discrepancies in the actual records make an exact appraisal of this growth difficult (see Appendix 2).⁷

In his book, A History of Bethlehem, Pennsylvania, 1741-1892, J. M. Levering states the mill was sold by Jacob Luckenbach to his sons, David and Andrew Luckenbach, in 1861, but there is no evidence within the records of Northampton County Courthouse that such a transaction took place. However, in a 1905 document pertaining to the entrance of

-3-
4

his sons into the partnership which controlled the mill, David Luckenbach stated that he and Andrew formed a partnership in the flour, feed, and grain business on 1 September 1861.⁸ In the Marriage Records of the Moravian Church, Jacob Luckenbach is listed as having "extensive business interests in Bethlehem",⁹ and in view of this, it would not seem unlikely that he turned over the management and operation of the mill to his sons in 1861. By doing so, he could concentrate on other affairs while retaining legal ownership of the mill.

On 27 January 1869, disaster struck when the 1751 grist mill was destroyed by fire. The next day, the Bethlehem Daily Times published a vivid account of the fire and the efforts of local firemen to save the structure. The value of the mill property and stock was given as \$25,000, and the damage incurred by the fire was estimated to be \$20,000.¹⁰ In the following months, a number of articles appeared in the Bethlehem Daily Times, giving some indication of the progress being made on the new mill the Luckenbachs had decided to construct on the old mill's foundation. On 15 March 1869, a number of old coins were reported found in the ruins of the old Moravian Mill, indicating some kind of activity at the mill site.¹¹ On 23 March, David and Andrew Luckenbach placed a notice that they were selling seed oats, making it apparent that the fire had not destroyed their desire to continue in the grain business.¹² On 3 July, a reference was made to a theft of business papers and tools from the mill, indicating that either David and Andrew had moved their business temporarily to another location, or that the present mill had been completed to the point where it could be used for some purposes.¹³ The 9 September 1869, edition of the Times, reported: "The 'Old Mill' has disappeared and a fine new brick building occupies its place."¹⁴ Thus, in a period of less than nine months, the new Luckenbach flour mill rose from the ashes of the former structure. (see Photo PA-50-20).

By the time the new mill had been built, however, there had been a major transfer of the mill property. On 1 April 1869, the three tracts of land Jacob Luckenbach purchased from Phillip Goepp in 1851 were sold to David and Andrew Luckenbach for \$17,000.¹⁵ Thus, legal possession of the property did not pass to David and Andrew until after the destruction of the old mill.

The 1870 Federal Manuscript Census registers the new mill under the ownership of David and Andrew Luckenbach and refers to it as a flour mill (see Appendix 2).¹⁶ As in the two previous censuses, it was listed as a water-powered mill. The capital investment was valued at \$25,000, and the machinery included four runs of stones. The

-4-
5

Census was based on information for the year ending 1 June 1870 and the mill was listed as having operated for the previous 12 months. This could be an exaggeration, but it indicates the mill had been in operation a large part of the preceding year.

Due to the booming productivity of the mill following its reconstruction, the water power provided by Monocacy Creek was found to be increasingly unsatisfactory, and in 1877, both steampower and turbine wheels were added.¹⁷ In 1880, the steampower was further described as two boilers and one engine with a capacity of 55 HP. The water turbines were listed as two Leffel turbines, 3-1/2 feet in breadth with a capacity of 90 RPMs and a power rating of 32 HP for both. These additions increased the capital investment to \$45,000 (see Appendix 2).¹⁸

In 1882, the mill stones were replaced by the Allis roller system¹⁹ and this alteration indicates the Luckenbach mill was taking part in a major technological revolution that swept the United States in the last half of the 19th century. Previous to this, grain had been ground by stone burrs set close together to produce as much flour as possible in one run. The product of this grinding was then separated into flour, middlings, and tailings.²⁰ In the 1870s, a more efficient means of separating the middlings was developed by Edmond La Croix in Minneapolis. His new purifier allowed the middlings to be reground into "patent" flour which was highly superior for baking bread.²¹ The public acceptance of "patent" flour stimulated the adoption of roller systems to granulate the grain instead of pulverizing it. The grain was passed between two cylindrical rollers of chilled iron and twisted until it cracked, thereby separating the interior, starchy portion from the hull and germ. This product was purified and the middlings run through the rollers again to produce more flour. This process was repeated a number of times until all the middlings were ground into flour.²² The distribution of the "patent" flour produced by the Luckenbachs was given a boost in 1884, when the Lehigh and Susquehanna Division of the Central Railroad of New Jersey built a siding to the mill.²³

The most detailed and complete record of the actual machinery used in the mill is given for the year 1892 in a Sanborn-Perris map of Bethlehem used for insurance purposes (Photo PA-50-22).²⁴ A large number of machines were listed that place the mill in the front ranks of contemporary milling science. Eight double standard rolls and one feed stone were cited which gave the mill a much larger milling capacity than was indicated in the 1880 census. A large number of sifting mechanisms, such as Universal Bolters, purifiers, centrifugals, and separators, were listed along with a 75 HP engine. The cataloging of the machinery on a floor-by-floor basis indicates a sophisticated system

-5-

of elevators that could route different quality grain through a variety of processes. The mill also had a fan and three dust collectors to protect against spontaneous combustion, an ever-present danger in flour mills. A reference to the grain elevator indicates its construction during or prior to 1892. The "Crib Construction" of the elevator may be seen in photos taken during the elevator's demolition in the 1960's (Photo PA-50-24). The monitor that was not present in early photos of the 1869 mill may have been added at the same time as the elevator. An examination of the machinery in the monitor shows worn conveyors which would have transferred the grain from the elevator to the mill (Photo PA-50-17). The South Bethlehem Semi-Centennial lists the construction date of the elevator as 1893 and gives its capacity as 25,000 bushels.²⁵

According to this same source, the mill was remodeled in 1904 by the Allis-Chalmers Company, under the supervision of Daniel Kratz. The capacity of the mill was raised from 175 barrels to 200 barrels of spring wheat per day. The major reason for this increase was credited to replacement of 9x18-inch hexagonal rolls with 9x24-inch rolls of the Universal Bolter.²⁶ This information is somewhat at odds with the 1880 Census of Manufacturers which stated that the mill had three Universal Bolters in 1880.

Due to the loss of the Luckenbach family's business records and the absence of municipal building records, exact dating of additions to the 1869 mill proved difficult. From photographic records available in the archives of Historic Bethlehem Incorporated, it may be surmised that, between 1869 and 1874, the mill was rectangular in plan, with a small, two-story extension at the northeast corner. Sometime between 1874 and 1892, the present "L-shaped" plan was formed by a large addition at the northwest corner. This addition followed closely the architectural styling of the 1869 structure. It is probable this enlargement was made in 1882, when the Allis roller system was installed. From these same photographic records, it is evident that, following the large northwest addition, a third floor and mansard roof were added to the northeast extension some time before 1892.⁷

In 1905, after over 40 years of business, the partnership between David and Andrew Luckenbach closed with the death of Andrew. He had never married and his interest in the firm was divided equally among the three sons of David: Horace A., Robert M., and Paul J. Luckenbach. In a document dated 29 November 1905, it was recorded that David O. Luckenbach owned one half of the milling concern and each of his sons controlled a one-sixth interest. In the same document, the real estate and mill machinery was valued at \$26,550.²⁷

-8-
7

When David Luckenbach died on 28 December 1906, the firm of David and Andrew Luckenbach came under the complete control of his sons, Horace, Robert, and Paul. The final accounting of the estate was made in 1912, when the mill property and machinery was assigned a value of \$40,270.80.²⁸ Operation of the mill continued under the direction of the three brothers for the next two decades, but the financial integrity of the establishment was slowly eroding. On 31 July 1923, Horace, Robert and Paul mortgaged the mill and accompanying property for 1 year to the First National Bank of Bethlehem (now First Valley National Bank) for \$47,000.²⁹

Business did not go well for the firm, and in early August 1927, the demise of the family enterprise was officially noted. Judge William H. Kirkpatrick of the U. S. Eastern District Court of Pennsylvania appointed Frank P. Snyder (Sheriff) and Charles E. Jewell as receivers' in equity for the firm. Plans were made for the mill to continue operations with its current force of employees, but a major reorganization of its management was scheduled to take place.³⁰

In a letter from Taylor and McCarthy, Attorneys-at-Law, to Sheriff Elmer H. Spengler, dated 14 September 1927, notification was given of a Writ of Levari Facias, which directed Spengler to sell the mortgaged properties after proper advertisements.³¹ By this time, Horace Luckenbach had died and only Robert and Paul Luckenbach were listed as the mortgagees. The damages were assessed by Prothonary at \$68,714.06 plus interest, as of 13 September 1927 and the judgement was made for that amount.³²

The sale of the mortgaged property was given proper public notice on 21 October 1927³³, and on 12 November 1927, Sheriff John Spengler sold the three lots on Monocacy Creek (minus land sold in previous transactions) (see Appendix 1) to Miss Pauline Weaver for a sum of \$63,556.63.³⁴ This amount did not completely cover the damages, but it is believed the Luckenbachs had other assets which they liquidated to meet their total debt.³⁵ It is possible that Miss Weaver was acting as an agent of the First National Bank of Bethlehem, utilizing her financially immune status as an unasseted woman to protect the bank from possible legal action. Such arrangements were not unusual.

On 23 February 1928, Pauline Weaver sold the three lots to the Lehigh Valley National Bank of Bethlehem for the sum of one (1) dollar.³⁶ It retained ownership for the next four years as the mill temporarily halted operations in 1929,³⁷ and then recontinued in 1931 as the Luckenbach Milling Company, under the management of C. W. Jewell.³⁸

-7-
2

On 9 September 1932, Lehigh Valley National Bank sold the three tracts of land to the First National Bank of Bethlehem, which retained possession for the next 12 years.³⁹ While the First National Bank owned the mill, it was operated under three different names. In 1934, it was the Luckenbach Milling Company, with Paul Ganey, President, and Robert Lindenman, Treasurer,⁴⁰ but, by 1937, it had become Flory Milling Co., Inc., with Milton Flory as President and Sidney Beck as Manager.⁴¹ In 1939, the mill changed its name for the final time and became the Anchor Mills, under the management of Sidney Beck. It remained as such through the war years.⁴²

On 4 November 1946, the First National Bank of Bethlehem sold the mill property to Sidney Beck for the price of one (1) dollar. The land sold was described as "part of tract no. 1" with the address 4 Prospect Avenue and 459 Old York Road.⁴³ This was the final sale of the mill as a functioning industrial concern. Sidney Beck died on 9 June 1949,⁴⁴ but the mill remained in business until 1951 under the management of the Estate of Sidney Beck.⁴⁵

On 24 April 1952, the widow of Sidney Beck, Ruth, sold the mill property to Isaac Kaplin and Abe Glaser for the sum of \$17,000.⁴⁶ Following this sale, the machinery was removed from the structure, and throughout the 1950s, Kaplin and Glaser used the mill as a warehouse for their auto parts dealership. On 8 November 1963, Glaser and Kaplin sold the mill to the Redevelopment Authority of Bethlehem for the price of one (1) dollar, under the stipulation that the property be used as a park.⁴⁷ This is the final transaction concerning the property recorded in the Northampton County Courthouse, but at the tax assessment office in Bethlehem, the mill property is listed under the ownership of the city of Bethlehem.

In 1966, the mill was leased from the city of Bethlehem by Historic Bethlehem, Inc. for a period of 99 years. Plans are underway for its renovation and eventual use in an historical park.

During its 83 years of operation, the Luckenbach Flour Mill provided Bethlehem and the surrounding vicinity with an establishment designed to meet the community's milling needs. Locked into a decaying urban environment, the mill lost its economic importance as the agricultural significance of Eastern Pennsylvania declined and the area's steel and heavy manufacturing industries developed. Today, the mill is a relic of an era that created the technological foundations of the twentieth century, but whose technology could no longer serve the needs of contemporary society.

FOOTNOTES

1. The 1820 Federal Manuscript Census of Industry for Pennsylvania, located in the National Archives, has no records of any mill in Bethlehem, Pennsylvania. In a personal discussion with William J. Murtagh, author of Moravian Architectural and Town Planning, it was learned that drawings of the original 1743 grist mill still exist in Herrnhut, Germany. However, he stated that there are no records of the 1751 mill located there. In J. M. Levering's A History of Bethlehem, Pennsylvania, 1741-1892, it states that George Henry Woehler leased the mill from the Moravian Congregation in 1825, and five years later, the mill was sold to C. A. Luckenbach. However, no records of these transactions appear in the Northampton County Courthouse.
2. Deed Book D-7, page 154, Office of the Recorder of Deeds, Northampton County Courthouse, Easton, Pennsylvania. A ground rent contract is peculiar to the State of Pennsylvania and it occupies a legal status somewhere between rental and outright ownership. Suffice it to say that with this kind of contract, the Moravian Church retained at least some financial interest in the grist mill.
3. Deed Book D-7, page 154, ORD, NCC, Easton, Pennsylvania.
4. 1850 Federal Manuscript Census of Industry for Pennsylvania, Microcopy #T1157, Roll #3, National Archives, Washington, D. C.
5. Deed Book D-7, page 154, ORD, NCC, Easton, Pennsylvania.
6. Deed Book B-9, page 442, ORD, NCC, Easton, Pennsylvania.
7. 1860 Federal Manuscript Census of Industry for Pennsylvania, Microcopy #T956, Roll #4; National Archives, Washington, D. C.
8. Miscellaneous Book 42, page 18, ORD, NCC, Easton, Pennsylvania.
9. Marriage Records of the Bethlehem Moravian Congregation with Supplementary Biographical Material 1742-1892. Listing for 5 January 1864, page 199.
10. Bethlehem Daily Times, 28 January 1869.
11. Bethlehem Daily Times, 15 March 1869.
12. Bethlehem Daily Times, 23 March 1869.
13. Bethlehem Daily Times, 3 July 1869.

P10

14. Bethlehem Daily Times, 9 September 1869.
15. Deed Book F-12, page 518, ORD, NCC, Easton, Pennsylvania.
16. 1870 Federal Manuscript Census of Industry for Pennsylvania, Microcopy #T956, Roll #7; National Archives, Washington, D. C.
17. South Bethlehem Semi-Centennial 1865-1915, October 3-9, Quinlan Printing Co., 1915.
18. 1880 Federal Manuscript Census of Manufacturers for Pennsylvania, Microcopy #T956, Roll #12, National Archives, Washington, D. C.
19. South Bethlehem Semi-Centennial 1865-1915, October 3-9, Quinlan Printing Co., 1915.
20. Oliver Evans, The Young Mill-Wright and Millers Guide, (New York, 1972 [1790]), pages 255-283. Evans was responsible for the automation of the flour mills through his invention of a system of conveyors that made the small water mill virtually a one or two man operation. From 1790 until the invention of the roller mill in the late 1870s, innovation in flour milling consisted of elaborations of Evans' design.
21. Charles B. Kuhlman, The Development of the Flour-Milling Industry in the United States, (Boston: Houghton-Mifflin Co., 1929), page 120.
22. Charles B. Kuhlman, The Development of the Flour-Milling Industry in the United States, page 122.
23. South Bethlehem Semi-Centennial 1865-1915, October 3-9, Quinlan Printing Co., 1915.
24. Sanborn-Perris Map Co. Limited, Bethlehem, Pennsylvania; New York, 1892, Map 21.
25. South Bethlehem Semi-Centennial 1865-1915, October 3-9, Quinlan Printing Co., 1915.
26. South Bethlehem Semi-Centennial 1865-1915, October 3-9, Quinlan Printing Co., 1915. This would be more appropriate if it said hexagonal reels.
27. From Miscellaneous Book 42, page 18, ORD, NCC, Easton, Pennsylvania.
28. From Will Book 16-649, Will #17537, as recorded in the Office of Wills, Northampton County Courthouse, Easton, Pennsylvania. The will was dated 20 October 1904 and registered 7 January 1907.

29. From Mortgage Book 229, page 619, ORD, NCC, Easton, Pennsylvania. The Mortgage was for one year and included interest accrued at 6% per annum plus insurance premium.
30. Bethlehem Globe-Times, 12 August 1927.
31. From Continuance Docket 128, April-September 1927, Writ of Levari Facias sur Judgement #91, September Term, ORD, NCC, Easton, Pennsylvania.
32. Writ of Levari Facias, Execution #2 November Term 1927, ORD, NCC, Easton, Pennsylvania.
33. Bethlehem Globe-Times, 21 October 1927.
34. From Deed Book A-59, page 607, ORD, NCC, Easton, Pennsylvania.
35. From Deed Book B-59, page 43, ORD, NCC, Easton, Pennsylvania. In particular, they sold a house on Goepp Street for \$3,500.
36. From Deed Book A-59, page 689, ORD, NCC, Easton, Pennsylvania. On 2 June 1928, Robert Luckenbach, et al., sold off all rights to the milling property to the First National Bank of Bethlehem for the purpose of "curing any defect that may have existed in description of property in mortgage of 31 July 1923." The price was one (1) dollar. (Deed Book C-59, page 556). On 18 June 1928, the First National Bank of Bethlehem sold their claims to the mill to Lehigh Valley National Bank of Bethlehem for one (1) dollar. (Deed Book C-59, page 559).
37. Bethlehem City Directory, 1929.
38. Bethlehem City Directory, 1931.
39. From Deed Book G-64, page 105, ORD, NCC, Easton, Pennsylvania. In December 1933, a 3-foot strip of land from these lots was sold to the city of Bethlehem to be used forever more as a conveyance for a city park.
40. Bethlehem City Directory, 1934-35.
41. Bethlehem City Directory, 1937-38.
42. Bethlehem City Directory, 1939.
Many attempts were made to investigate the files of the First National Bank of Bethlehem (now First Valley National Bank of Bethlehem, Pennsylvania), with regard to the operation of the mill

during the 1930s. Unfortunately, the author never gained access to any of the bank's records on the mill, due to time limitations and clerical delays in retrieval. If further historical investigation of the mill's operation is to take place, this would perhaps be a good place to start.

43. From Deed Book F-78, page 399, ORD, NCC, Easton, Pennsylvania.
44. From Deed Book C-89, page 630, ORD, NCC, Easton, Pennsylvania.
45. Bethlehem City Directory, 1951
46. From Deed Book C-89, page 630, ORD, NCC, Easton, Pennsylvania.
47. From Deed Book Vol. 204, page 472, ORD, NCC, Easton, Pennsylvania.

P13

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Primary Sources

Beckel, Clarence E., ed., Marriage Records of the Bethlehem Moravian Congregation with Supplementary Biographical Material 1742-1892.
2 vols., Bethlehem, Pennsylvania, 1936.

A record of births, deaths, and marriage of members of Bethlehem Moravian Church. Also includes some very short historical encapsulations of members' lives.

Federal Manuscript Census of Industry for Pennsylvania, 1850, 1860, 1870. National Archives, Washington, D. C.

Listing of owners, type of business, number of employees, amounts of raw and finished products for preceeding year, etc. (see appendix 2).

Federal Manuscript Census of Manufactures for Pennsylvania, 1880,
National Archives, Washington, D. C.

Listing of owners, types of business, number of employees, amounts of raw and finished products for preceeding year, etc. (see appendix 2).

Records, Office of the Recorder of Deeds, Northampton County Courthouse, Easton, Pennsylvania.

All legal transactions occurring in Northampton County since the 18th century are recorded here.

Sanborn-Perris Map Co., Limited, Bethlehem, Pennsylvania, New York, 1892.

A map of Bethlehem made for insurance purposes. Some information about industries is included (see appendix 3).

Secondary Sources

Bethlehem City Directories, 1923-1953

Listing of all establishments and residences in Bethlehem including addresses and phone numbers.

Bethlehem Daily Times (After 1923, Bethlehem Globe-Times) Microfilm 1869-71; 1877; 1927

Local newspaper concerned with regional affairs.

Evans, Oliver, The Young Mill-Wright and Millers Guide, New York, 1972 [1790]

Technical description, with plans and drawings necessary for construction and operation of contemporary (1790) mill.

Kuhlman, Charles Byron, The Development of the Flour-Milling Industry of the United States. Boston: Houghton-Mifflin Co., 1929.

A good general survey of the flour-milling industry. Contains a concise treatment of the technical evolution of milling, the important innovations and their impact on the economic and social structure of the industry. A heavy emphasis on Minneapolis and Midwest. Bias toward management only slightly effects treatment of technical development.

Levering, Joseph Mortimer, A History of Bethlehem, Pennsylvania, 1741-1892, Bethlehem, Pennsylvania: Times Publishing Co., 1903.

An unreferenced, unfootnoted history considered to be the basic work on the city. Found to have occasional factual errors.

Murtagh, William J., Moravian Architecture and Town Planning, Chapel Hill: The University of North Carolina Press, 1967.

An interesting and informative treatise on the origins and history of Moravian town planning in both the Old World and the New. Complete with many drawings and concise analysis.

p15

No author. Bethlehem Semi-Centennial, 1865-1915, October 3-9.
Quinlan Printing Co., 1915.

An informal, unreferenced history published
in a large magazine format.

p16

Appendix 1

[Description of tract #1 as given in Deed Book D-7, page 154, Office of the Recorder of Deeds, Northampton County Courthouse, Easton, Pennsylvania.]

Beginning at a stone before the mill in the middle of Water Street, thence along the east side of the tail race south 10 degrees west 156 feet to a post, thence south 4 degrees west 57 feet, then south 12 degrees, east 124 feet to a post, thence north 24 degrees, west 36 feet to a post, thence north 4 degrees, west 61 feet to a post, thence north 10 degrees, east 228 feet, 8 inches to a post before the mill in Water Street, thence north 56 degrees, west 59 feet and 6 inches to the corner of the dwelling house attached to the mill, thence along the eastern side of an alley north 11-1/4 degrees, east 157 to a post at the side of a private road running along the western side of the Manockisy Creek, then along the side of said road north 6-1/4 degrees, east 138 feet to a walnut tree, and north 11 degrees east, 230 feet to a post at the western extremity of the dam across the Manockisy Street, thence across said dam south 78-1/2 degrees, east 198 feet to a poplar tree on the east side of the Race, thence down the east side of said race, south 1 degree west 42 feet to a willow tree, thence along the eastern water edge of said race, south 6-3/4 degrees, east 196 feet and south 5 degrees, west 121 feet, thence south 81-1/2 degrees, east 40 feet, south 35 degrees, east 20 feet and 6 inches to the western side of an old road, thence along the same south 12-3/4 degree west 96 feet and 6 inches, and 6 inches, thence across said road south 86-1/2 degrees east, 28 feet, thence along the west line of a lot now in the occupancy of George Luckenbach, south 1 degree, east 76 feet to a post, thence south 66-3/4 degrees, west 16 feet, 6 inches to a post in the old road aforesaid, thence south 30-1/4 degrees, east 98 degrees to a post, thence south 70-1/2 degrees, west 60 feet to a post, at the side of the public road leading through Water Street, thence north 33-1/2 degrees, west 130 feet and 6 inches to the place of Beginning.

[Between 1851 and 1927, the Luckenbach family sold off various parcels of land that were part of the original three lots. These transactions are listed in Deed Book A-59, page 609, as follows:]

O. O. Luckenbach and wife to A. A. Luckenbach recorded in Northampton County in Deed Book E, Vol. 18, page 115.

D & A Luckenbach in Moravian community, Recorded in Northampton County in Deed Book H, Vol. 39, page 209.

D & A Luckenbach to L. & N.E.R.R., recorded in Northampton County in Deed Book [A blank space appears in deed book.]

D & A Luckenbach to J. Widmand & Co., recorded in Northampton County in Deed Book H, Vol. 35, page 221.

D & A Luckenbach to A. A. Luckenbach, recorded in Lehigh County in Deed Book No. 84, page 425.

D & A Luckenbach to Lehigh & Northampton Counties, recorded in Lehigh County in Deed Book 129, page 497.

D & A Luckenbach to Broad Street Bridge Company, recorded in Northampton County in Deed Book H, Vol. 22, page 83.

H. A. Luckenbach and others to Charles F. Kurtz and others, recorded in Lehigh County in Deed Book No. 217, page 140.

H. A. Luckenbach and others to Cyrus Lerch, recorded in Lehigh County in Deed Book 272, page 494.

H. A. Luckenbach and others to Lehigh and Northampton Counties, recorded in Northampton County in Deed Book E, Vol. 36, page 440.

Sources

Deed Book D-7, page 154, Office of Recorder of Deeds, Northampton County Courthouse, Easton, Pennsylvania.

Deed Book A-59, page 609, ORD, NCC, Easton, Pennsylvania.

P 18

Appendix 2

1850 Federal Manuscript Census of Industry

Owner - J. Luckenbach

Occupation - Miller

Capital Investment - \$10,000

Power Source - Water

Number of Employees - One (1)

Wage per Month - \$25

Raw materials used (for preceding year) - 1500 bushels of wheat, value \$1,500

Annual Product of Mill - 150 barrels of flour, 150 sacks of flour, total value \$2,000

1860 Federal Manuscript Census of Industry

Owner - J. Luckenbach

Type of Business - Flour and Feed

Capital Investment - \$15,000

Power Source - Water

Number of Employees - 2 (male)

Average monthly wage - \$48

Raw materials used in preceding year	Value
600 bushels of oats	\$210
1500 bushels of corn	\$975
2000 bushels of rye	\$1,800
26,000 bushels of wheat	\$3,640

1919

Annual product of preceding year	Value
5800 barrels of flour	\$34,800
4100 barrels of feed	\$3,249
Other work	\$900

The records were written in longhand and it is obvious that there is a discrepancy in the values assigned to the raw wheat used. \$3,640 is obviously too small, but this was clearly the value recorded. Perhaps a digit was left out between the 3 and the comma.

1870 Federal Manuscript Census of Industry

Owner - D & A Luckenbach

Type of Business - Flour mill

Capital Investment - \$25,000

Power source - Water 30 horsepower

Number of employees - 6 (male)

Machinery - 4 runs of stones

Raw materials used in preceding year	Value
3000 bushels of oats	\$1,800
25,000 bushels of corn	\$27,500
3000 bushels of rye	\$3,300
40,000 bushels of wheat	\$54,000

Annual product of preceding year	
8000 barrels of wheat flour	\$56,000
[no amount given] rye flour	\$3,630
[no amount given] mixed feed	\$1,980
[no amount given] corn meal and feed	\$30,250

p20

1880 Federal Manuscript Census of Manufacturers

Owner - D. & A. Luckenbach

Type of Business - Flouring and Grist Mill

Capital Investment - \$45,000

Power Source - Water; 9 foot fall, 2 Lefel [sic] Turbines, 3-1/2 feet in breadth

90 RPMs, 32 horsepower

Steam: 2 boilers, 1 engine 55 hp.

Average number of employees - 6 (male)

Hours in a day of labor - 12

Average day wage for a skilled mechanic - \$1.40

Average day wage for ordinary laborer - \$1.25

Total wages paid in year - \$2,880

Machinery - 5 runs of stones

Months in operation - 12

Maximum capacity per day - 300 bushels

Raw materials used in preceding year	Value
70,000 bushels of wheat	\$87,500
30,000 bushels of other grains	\$15,000
Mill supplies	<u>\$ 7,000</u>
Total value of all materials	\$109,500

Products of preceding year

14,000 barrels of wheat

500 barrels of rye

651,750 pounds of corn meal

1,955,250 pounds of feed

Total value of products - \$138,1000

Sources

1850 Federal Manuscript Census of Industry for Pennsylvania, Microcopy
#T1157, Roll #3, National Archives, Washington, D. C.

1860 Federal Manuscript Census of Industry for Pennsylvania, Microcopy
#T956, Roll #4, National Archives, Washington, D. C.

1870 Federal Manuscript Census of Industry for Pennsylvania, Microcopy
#T956, Roll #7, National Archives, Washington, D. C.

1880 Federal Manuscript Census of Manufacturers for Pennsylvania,
Microcopy #T956, Roll #12, National Archives, Washington, D. C.

p22

Appendix 3

Information given in 1892 Sanborn-Perris Insurance Map of Bethlehem,
Sheet 21

Capacity - 23,000 bushels

No watchman, no heat

Power: steam, water (two turbines)

Lights: electric

Buckets, Bbls., and 125' - 2-1/2" hose

Machinery:

1st floor - 2 cleaning machines of 600 RPM

1 Scourger of 800 RPM

1 Invincible Separator of 480 RPM

2nd floor - 8 Double Standard rolls of 350 RPM

1 Feed stone of 350 RPM

2 Flour Packers of 80 RPM

3rd floor - 3 Universal Bolters of 130 RPM

2 Centrifugals of 180 RPM

2 Purifiers of 575 RPM

1 Exhaust fan of 1650 RPM

1 Eureka Separator of 450 RPM

4th floor - 3 Dust collectors of 30 RPM

1 Centrifugal of 180 RPM

1 Purifier of 575 RPM

1 Separator of 600 RPM

p23

1 Flour Mixer of 450 RPM

1 Bran Duster of 180 RPM

1 75 HP Engine

Grain Elevator of Crib Construction

Source:

Sanborn-Perris Map Co. Limited, Bethlehem, Pennsylvania, New York,
1892, Map 21.

p24

Appendix 4

Listings of the Luckenbach Flour Mill Property in the Bethlehem City Directories.

1888	D. & A. Luckenbach, Bethlehem Roller Flouring Mill, Water Street
1906	D. & A. Luckenbach, Bethlehem Roller Flouring Mill, Allentown Road and Water Street
1923	D. & A. Luckenbach (H. A., P. J., R. M. Luckenbach), Flour Manufacturers, Water near Ohio
1925-26	D. & A. Luckenbach (H. A., P. J., R. M. Luckenbach), Flour and Grist Mill, 2 Water Works Road
1927-28	Luckenbach Milling Co., Water Works Road 2-6 (No listing for D. & A. Luckenbach)
1929	No listing anywhere in directory.
1931	Luckenbach Milling Co., C. W. Jewell Manager, Prospect Avenue near Monocacy Creek
1934-35	Luckenbach Milling Co., Paul Ganey President, Robert Lindenman Treasurer, 100 Prospect Avenue
1938-39	Flory Milling Co., Inc., Milton Flory President, Sidney Beck Manager- 9 Water Works Road
1939	Anchor Mills (Formerly Flory Milling Co., Inc.), Sidney Beck, Proprietor, Wholesale and retail Flour, Feed, Hay and Grain, Distributor for Flory Feeds, 9 Water Works Road
1941	Anchor Mills, Sidney Beck, Proprietor, 9 Water Works Road
1945	Anchor Mills, Sidney Beck, Proprietor, 9 Water Works Road
1951	Anchor Mills, Estate of Sidney Beck, Flour, Feed, Hay and Grain, Complete Line of Cattle and Poultry Feeds, 9 Water Works Road

Sources

Bethlehem City Directory, 1888 through 1951.